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SOUTHERN COMPANY

June 5, 2014

Docket No.: 50-424

NL-14-0810

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Vogtle Electric Generating Plant – Unit 1
Licensee Event Report 2014-002-00
Manual Reactor Trip due to Main Steam Isolation Valve Failure

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(iv)(A), Southern Nuclear Operating Company (SNC) is submitting the enclosed Licensee Event Report, 2014-002-00. This letter contains no NRC commitments. If you have any questions, please contact George Gunn at (706) 848-3596.

Respectfully submitted,

T. E. Tynan
Vice President – Vogtle

TET/KDM

Enclosure: Unit 1 Licensee Event Report 2014-002-00

cc: Southern Nuclear Operating Company
Mr. S. E. Kuczynski, Chairman, President & CEO
Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer
Mr. B. L. Ivey, Vice President – Regulatory Affairs
Mr. D. R. Madison, Vice President – Fleet Operations
Mr. C. R. Pierce, Regulatory Affairs Director
Ms. M. A. Cline, Vogtle OE Coordinator
RType: CVC7000

U. S. Nuclear Regulatory Commission
Mr. V. M. McCree, Regional Administrator
Mr. R. E. Martin, NRR Senior Project Manager - Vogtle
Mr. L. M. Cain, Senior Resident Inspector – Vogtle

Vogtle Electric Generating Plant – Unit 1
Licensee Event Report 2014-002-00
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Enclosure

Unit 1 Licensee Event Report 2014-002-00

NRC FORM 366 (02-2014) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 01/31/2017

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Vogtle Electric Generating Plant – Unit 1	05000 424	1 OF 3

4. TITLE

Unit 1 Manual Reactor Trip due to Main Steam Isolation Valve Failure

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
4	12	14	2014	- 002	- 00	06	05	2014		05000
									FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*			
1	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
028	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER *(Include Area Code)*
Vogtle Electric Generating Plant / Karen Morrow, Licensing Engineer	(706) 848-3365

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	SB	ISV	R344	Y					

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO				

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On 4/12/14 at 20:08, Unit 1 Reactor was manually tripped from 28 percent power. The manual trip occurred during power ascension following the 1R18 refueling outage. Control room operators received a Loop 1 Train B main steam isolation valve (MSIV) trouble annunciator followed by the MSIV not fully open annunciator. Control room operators recognized steam generator 1 level and loop 1 steam flow lowering and manually tripped the reactor.

Unit 1 was stabilized in Mode 3. Plant systems responded as expected with decay heat removal via Auxiliary Feedwater and steam discharge to the Main Condenser. Unit 2 was unaffected and there were no adverse effects on plant safety or on the health and safety of the public. This incident is of very low safety significance.

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		YEAR	SEQUENTIAL NUMBER	REV NO.	
Vogtle Electric Generating Plant – Unit 1	05000 0424	2014	- 002	- 00	2 OF 3

NARRATIVE

A. REQUIREMENT FOR REPORT

This report is required per 10CFR 50.73(a)(2)(iv)(A) due to an unplanned manual actuation of the Reactor Protection System (RPS) and automatic actuation of the Feedwater Isolation (FWI) Engineered Safety Features Actuation System (ESFAS).

B. UNIT STATUS AT TIME OF EVENT

Mode 1, 28 percent rated thermal power.

C. DESCRIPTION OF EVENT

On 4/12/14 at 20:08, Unit 1 Reactor was manually tripped from 28 percent power. The manual trip occurred during power ascension following the 1R18 refueling outage. Control room operators received a Loop 1 Train B main steam isolation valve (MSIV) trouble annunciator followed by the MSIV not fully open annunciator. Control room operators recognized steam generator 1 level and loop 1 steam flow lowering and manually tripped the reactor.

The direct cause of the event was a failed O-ring on the Loop 1 Train B MSIV lower manifold-to-cylinder mating surface resulting in a loss of hydraulic oil pressure. The root cause was misalignment of the lower manifold-to-cylinder mating surface during valve reassembly. Post-event test results from an independent laboratory concluded the pinched O-ring occurred as the lower manifold and the cylinder were connected and bolted together. The MSIV drifted closed to its fail safe position as hydraulic pressure lowered. Unit 1 was stabilized in Mode 3. Plant systems responded as expected with decay heat removal via Auxiliary Feedwater and steam discharge to the Main Condenser. Plant systems responded as expected and there were no adverse effects on plant safety or on the health and safety of the public. Unit 2 was unaffected.

D. CAUSE OF EVENT

The direct cause of the event was a failed O-ring on the Loop 1 Train B MSIV lower manifold-to-cylinder mating surface. This resulted in a loss of hydraulic oil pressure causing the MSIV to fail closed. The O-ring was pinched during reassembly of the lower manifold and cylinder following valve maintenance.

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NARRATIVE

E. SAFETY ASSESSMENT

The MSIV failed to the closed position thereby fulfilling its designed safety function. Unit 1 was stabilized in Mode 3. Plant systems responded as expected with decay heat removal via Auxiliary Feedwater and steam discharge to the Main Condenser. There were no adverse effects on plant safety or on the health and safety of the public. This incident is of very low safety significance.

F. CORRECTIVE ACTION

Maintenance instructions will be provided to ensure proper alignment of the lower manifold-to-cylinder mating surface to prevent damaging the O-ring during installation or valve reassembly.

G. ADDITIONAL INFORMATION

1) Failed Components:

Component: ISV-Isolation Valve

2) Previous Similar Events:

Licensee Event Report 50-425/90-008-000, "Manual Reactor Trip Following MSIV Closure Due to O-ring Failure"

A similar event occurred at Vogtle Unit 2 in 1990. The cause for the MSIV closure was the failure of an O-ring sealing a connection on the non - pump side hydraulic manifold. Although failure modes were similar, rotary or oscillatory movement during re-assembly was not identified as a primary contributor.

3) Energy Industry Identification System Code:

Main/Reheat Steam System - SB